

Course title and number Topics in Contemporary Mathematics II (MATH 166)
Term Spring 2016
Class times and location Section 505 meets TR 3:55 – 5:10 PM in RICH 114

INSTRUCTOR INFORMATION

Name	Tamara Carter, Instructional Assistant Professor
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E-mail Address	tcarter@tamu.edu (please include your full name and class section)
Web Page	www.math.tamu.edu/~tcarter Class material will also be posted in eCampus at eCampus.tamu.edu.
Office	245A Blocker
Office Hours	TR 11 AM – 12:30 PM and 2:15 – 3:35 PM; and by appointment
Departmental Web Page	http://www.math.tamu.edu/courses/math166/

COURSE DESCRIPTION AND PREREQUISITES

Description: *Topics in Contemporary Mathematics II (Credit 3)* Finite mathematics, matrices, probability and applications.

Prerequisites: High school algebra I and II and geometry. Credit will not be given to more than one of Math 141 and 166.

Calculator Policy: A TI-83, TI-84 (Regular, Plus or Silver edition) or the TI-Nspire (non-CAS version with an 84 faceplate) calculator is **REQUIRED** and you must bring your calculator to each class. If you want to use a calculator other than those listed, it may NOT perform symbolic mathematics and **you must have my permission to do so**. Calculators are allowed on all assignments unless otherwise stated, but you must clear and reset the memory before each exam. You may not share calculators during exams or quizzes. I will consider any illegal use of calculators on exams or quizzes as academic dishonesty and report it to the Aggie Honor Council.

LEARNING OUTCOMES

This course is focused on quantitative literacy in mathematics found in everyday life. Upon successful completion of this course, students will be able to:

- Understand and apply the rules of logic and sets.
- Recognize patterns in order to understand the principles of probability and counting and apply these concepts to a variety of problems; for instance, finding the probability of drawing a particular hand from a deck of cards.
- Identify types of random variables and be able to calculate probabilities and statistics for these random variables.
- Apply the concepts of finance to everyday experiences, such as paying off mortgages and saving for retirement.
- Understand matrices and their relationships to applications including solving systems of linear equations and solving problems involving Markov processes and game theory.

TEXTBOOK AND/OR RESOURCE MATERIAL

- *Applied Finite Mathematics* by Tomastik and Epstein - ISBN: 1133444288 (loose-leaf)
 - You paid for an electronic book version of the text when you enrolled in this course. Information on how to access your eBook can be found under the "Student Information Page" at <http://www.math.tamu.edu/courses/eHomework/>. Look under the Math 166 link.
 - If you would like a physical copy of the textbook you may buy one, but it is not required.

GRADING POLICIES

The course grading will be based on the results of the following:

- **WebAssign Homework:** All online homework problem sets will be based in the online system WebAssign. Everything you will need to know about logging into your account is available at <http://www.math.tamu.edu/courses/eHomework/>. Please visit this site for help with technical difficulties, announcements, and more information. I suggest you bookmark this page and visit it before you login to WebAssign each time. Be sure to start each assignment well in advance of the due date. If you ever have technical issues with WebAssign, please fill out a **Student Help Request Form** found at <http://www.math.tamu.edu/courses/eHomework/>.
- **Quizzes:** You can expect to be given many quizzes throughout this course. Some may not be announced in advance, so be prepared daily. Quizzes may be given at any time during class, so make sure you arrive on time to each class and do not leave class early.
- **Exams:** There will be three in-class exams. You will be expected to show all of your work, including calculator methods, on all problems for full credit, unless it is stated otherwise.
- **Final Exam:** The in-class final exam is COMPREHENSIVE.

- **Grade Breakdown**

Activity	Date	Percentage
Homework	Weekly	10%
Quizzes	Weekly	20%
Exam I	February 11	15%
Exam II	March 10	15%
Exam III	April 14	15%
Final Exam	Monday, May 9, 1 pm	25%
Total		100%

- **Grading Scale**

Range	Grade
$90\% \leq \text{average} \leq 100\%$	A
$80\% \leq \text{average} < 90\%$	B
$70\% \leq \text{average} < 80\%$	C
$60\% \leq \text{average} < 70\%$	D
$0\% \leq \text{average} < 60\%$	F

ATTENDANCE AND MAKE-UP POLICIES

- **Excused absences:** Attendance is essential and may affect your grade. For excused absences please refer to Student Rule 7 at <http://student-rules.tamu.edu/rule07>. Excuses for absences must be substantiated by appropriate documentation. Falsification of documentation is a violation of the Honor Code. Notification before the absence is required when possible. Otherwise, you must notify me within 2 working days of the missed exam, quiz, or assignment to arrange a makeup. Further, an absence due to a non-acute medical service or appointment (such as a regular checkup) is not an excused absence. The Texas A&M University Explanatory Statement for Absence is not sufficient documentation for a medical absence.
- **Make-up exams** will be only allowed due to excused absences and the next possible make-up time be chosen from <http://www.math.tamu.edu/courses/makeupexams.html>. If you foresee the need to be absent during an exam, you **must** notify me in advance. If you have an excused absence for a quiz, I expect you to make up the quiz prior to the next class when possible.

COURSE TOPICS (Tentative weekly schedule. All changes will be announced in class.)

WEEK	TOPIC	SECTIONS COVERED
1	Logic, truth tables, sets	Sections L.1–L.2, 1.1
2	Number of elements in a set, sample spaces and events, basics of probability	Sections 1.1–1.4
3	Rules for probability, conditional probability, independent events	Sections 1.4–1.6
4	Bayes' Theorem. Review. Exam 1 (L.1–L.2, 1.1–1.7)	Section 1.7
5	Multiplication principle, permutations, combinations	Sections 2.1–2.2
6	Probability applications of counting principles, Bernoulli trials, random variables	Sections 2.3–2.4, 3.1
7	Random variables and histograms, measures of central tendency, measures of spread	Sections 3.1–3.3
8	The normal distribution, Review. Exam 2 (2.1–2.4, 3.1–3.4)	Section 3.4
9	Simple and compound interest, annuities, sinking funds	Sections F.1–F.3
10	Amortizations, introduction to systems, writing systems of linear equations, solving systems of linear equations with unique and non-unique solutions	Sections F.4, 4.3–4.4
11	Systems of linear equations with non-unique solutions, matrices, matrix multiplication with applications	Sections 4.4, 5.1–5.2
12	Inverse matrices, Review, Exam 3 (F.1–F.4, 4.3–4.4, 5.1–5.3)	Section 5.3
13	Markov processes, regular Markov processes, Absorbing Markov processes	Sections M.1–M.3
14/15	Game theory, Review for Final Exam	Finish Chapter M Sections G.1–G.2

AMERICANS WITH DISABILITIES ACT (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit <http://disability.tamu.edu>.

ACADEMIC INTEGRITY

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information on the Honor Council Rules and Procedures, consult <http://aggiehonor.tamu.edu>.

ADDITIONAL SOURCES OF HELP

- *Week-in-Review (WIR)*: There are Week-in-Review sessions conducted by an instructor each week. Each review is open to all Math 166 students to review the topics of the previous week and to provide additional examples. The days, times and places of these reviews will be posted and will be announced in class, once they are determined. This information can be found at

<http://www.math.tamu.edu/courses/weekinreview.html>.

- *Help Sessions*: Help sessions are an opportunity for you to ask questions and get help with your homework. These sessions are led by students, where you may come and go, as your schedule allows. Once determined, the schedule will be announced in class, and additionally posted at

<http://www.math.tamu.edu/courses/helpsessions.html>.